

January 2014 Regional Climate Summary

For the San Francisco Bay Area and Monterey Bay Area

January 2014 was the driest January on record at most climate stations across the San Francisco Bay Area and Monterey Bay Area. ***January 2014 was also a month of record warmth.*** More than 80 daily high temperature records were set during January and average monthly high temperatures were the warmest on record at most locations.

2014 started out much like 2013 ended – warm and dry. An upper level ridge of high pressure remained locked in place along or near the west coast for most of January. This ridge blocked nearly all incoming Pacific weather systems and resulted in record-breaking dry conditions. The ridge also created conditions favorable for many sunny dry days, which allowed daytime temperatures to warm to record levels on 18 January days, including an incredible stretch of 14 consecutive days of record warmth from January 13-26. The upper level ridge was strongest around the middle of the month when daytime temperatures warmed well into the 70s and lower 80s. Three climate stations set their all-time January high temperature records during this exceptionally warm period around the middle of the month, and one station tied its all-time January maximum temperature record:

- On Tuesday, January 14, the high temperature at the **San Francisco Airport** was 72 degrees, which tied the warmest January temperature recorded at SFO since temperature records began there in 1946. The next day, on the 15th, a new January record high of 73 degrees was set at SFO, which was then matched a day later on the 16th.
- On Wednesday, January 15, the high temperature at the **Salinas Airport** was 83 degrees, which broke the previous warmest January high temperature record of 82 set back in 1948. The next day, on January 16, the high at the Salinas Airport was 84 degrees, breaking the record set just one day earlier. Then, on January 17, the January high temperature record was broken for the third consecutive day at the Salinas Airport when the afternoon high reached a balmy 86 degrees. Temperature records at the Salinas Airport go back 84 years, to 1931.
- On Thursday, January 16, the high temperature at the **Oakland Museum** was 78 degrees, which tied the January high temperature record previously set in January of 2009. Oakland Museum's temperature records date back to 1971.
- On Friday, January 17, the high temperature in **Gilroy** was 80 degrees, breaking the previous January high temperature record of 79 set in January 2009. Gilroy's temperature records go back 57 years, to 1958.

In all, 81 daily high temperature records were set or tied across the region during January 2014 (for a list of all daily records, see table near the end of this document). All of that record daytime warmth meant that average highs during the month were significantly above normal, about ten degrees warmer-than-normal at many climate stations and as much as 13 degrees warmer than normal at some North Bay locations.

January Regional Temperature Summary

Location	Average High	Normal High	Departure from Normal	Average Low	Normal Low	Departure from Normal
North Bay						
Angwin	64.5	53.5	11.0	45.6	39.0	6.6
Calistoga	71.8	59.5	12.3	32.4	37.3	-4.9
Cloverdale	71.0	58.2	12.8	38.0	39.1	-1.1
Kentfield	65.3	55.0	10.3	41.7	41.3	0.4
Napa	67.2	57.3	9.9	37.9	39.4	-1.5
Napa Airport	65.6	55.1	10.5	32.6	37.0	-4.4
Petaluma Airport	65.8	56.9	8.9	33.1	39.2	-6.1
Saint Helena	70.5	57.8	12.7	39.0	38.6	0.4
San Rafael	65.1	54.0	11.1	43.3	41.8	1.5
Sonoma County Airport	67.7	56.7	11.0	32.0	36.6	-4.6
Sonoma	67.2	56.3	10.9	37.3	37.8	-0.5
San Francisco Peninsula						
Half Moon Bay	64.1	59.0	5.1	41.5	41.5	0.0
Redwood City	66.2	58.0	8.2	40.0	40.4	-0.4
San Francisco Airport	64.1	56.3	7.8	46.1	44.2	1.9
San Francisco Downtown	64.0	56.9	7.1	48.9	45.7	3.2
Woodside	69.9	60.5	9.4	35.7	37.0	-1.3
East Bay						
Antioch	64.9	53.9	11.0	41.8	38.7	3.1
Berkeley	67.0	58.4	8.6	45.6	42.0	3.6
Concord	66.3	56.8	9.5	41.4	41.0	0.4
Concord Airport	65.6	55.9	9.7	37.9	39.7	-1.8
Fremont	65.5	58.1	7.4	41.3	42.2	-0.9
Hayward Airport	64.0	57.2	6.8	42.6	42.5	0.1
Livermore	65.1	56.1	9.0	38.7	39.0	-0.3
Livermore Airport	67.4	56.0	11.4	38.8	37.4	1.4
Martinez	65.0	55.2	9.8	33.4	35.6	-2.2
Mount Diablo Junction	63.6	55.5	8.1	49.6	40.0	9.6
Newark	63.9	57.6	6.3	44.5	42.1	2.4
Oakland	68.2	58.1	10.1	45.7	44.3	1.4
Oakland Airport	63.7	56.9	6.8	40.5	41.7	-1.2
South Bay and Santa Cruz County						
Gilroy	70.5	60.4	10.1	37.5	38.0	-0.5
Los Gatos	65.1	57.7	7.4	38.3	38.9	-0.6
Moffett Federal Airfield	66.0	58.7	7.3	42.9	42.9	0.0
Mount Hamilton	58.5	48.7	9.8	48.5	38.4	10.1
San Jose	65.9	58.1	7.8	41.5	42.0	-0.5
Santa Cruz	69.7	62.6	7.1	41.6	41.3	0.3
Watsonville	71.7	60.9	10.8	40.6	39.4	1.2
Watsonville Airport	70.5	61.3	9.2	40.2	39.5	0.7
Monterey and San Benito Counties						
Carmel Valley	72.4	61.9	10.5	42.2	39.2	3.0
Hollister	69.3	60.1	9.2	38.2	38.2	0.0
King City	73.0	63.6	9.4	37.8	37.7	0.1

Monterey	66.9	58.3	8.6	48.0	43.7	4.3
Monterey Airport	66.5	59.5	7.0	44.5	42.5	2.0
Salinas	71.7	62.3	9.4	40.7	39.5	1.2
Salinas Airport	70.9	61.3	9.6	43.3	41.3	2.0

Average high temperatures for January were the warmest ever recorded at most climate stations (see table below). In many cases, these records were broken by a significant amount – by more than 5 degrees F. Not all climate stations had their warmest January on record, but those that didn't were close - the average January high temperature at both Napa and Monterey was the second warmest on record.

Location	January 2014 Average High Temperature	Previous Record for January and Year		Years of records at climate station
San Francisco Bay Area:				
Angwin	64.5	58.3	2003	60
Antioch	64.9	59.7	1976	56
Berkeley	67.0	61.6	2012	114
Cloverdale	71.0	63.6	2011	58
Gilroy	70.5	64.9	2012	56
Half Moon Bay	64.1	63.5	2009	73
Kentfield	65.3	60.6	1918	111
Livermore	65.1	64.7	1918	112
Los Gatos	65.1	63.4	1976	121
Martinez	65.0	59.5	2009	72
Mount Diablo Junction	63.6	62.1	1976	62
Mount Hamilton	58.5	57.7	2003	66
Newark	63.9	62.9	1948	72
Oakland	68.2	63.3	2003	43
Oakland Airport	63.7	61.0	1948	51
Petaluma Airport	65.8	61.5	1976, 1926	99
Redwood City	66.2	63.3	1948	81
Saint Helena	70.5	63.6	1948	101
San Francisco Airport	64.1	60.7	1948	69
San Francisco Downtown	64.0	62.6	2003	140
San Jose	65.9	64.2	1948	115
San Rafael	65.1	63.1	1948	63
Sonoma	67.2	65.5	1976	66
Monterey Bay Area:				
King City	73.0	66.7	1980	63
Salinas	71.7	69.1	1976	56
Salinas Airport	70.9	69.4	1948	82
Santa Cruz	69.7	65.7	1926	121
Watsonville	71.7	67.9	1920	100

Because most nights were clear and dry, overnight temperatures at lower elevations were relatively cool. As a result, average low temperatures for January were near normal at most climate stations, or even cooler than normal in some interior valleys spots. Only higher elevation locations, those located above the nocturnal inversion, experienced warmer-than-normal nighttime temperatures, including Mount Diablo Junction and Mount Hamilton where average nighttime minimum temperatures for January were above normal by a rather remarkable amount – about 10 degrees F at both locations. Both of these locations easily broke their record for warmest average nighttime minimum temperature for the month of January:

Location	January 2014 Average Low Temperature	Previous Record for January and Year		Years of records at climate station
San Francisco Bay Area:				
Mount Diablo Junction	49.6	44.8	1981	62
Mount Hamilton	48.5	46.7	2003	66

January Precipitation:

The strong and persistent upper ridge which produced record warmth during January also resulted in record dry conditions during the month. A few weak weather disturbances managed to generate isolated light rain between January 8 and 11, but at most only a few hundredths of rain was recorded during these days. Only one weather system, one near the end of the month on January 30, was strong enough to produce widespread rainfall across the region. And even that system managed to produce, at most, a quarter of an inch locally in the hills. Most lower elevation locations picked up a tenth of an inch or less.

Rain totals for January 2014 were exceptionally low. Monthly rain totals were less than a half inch at even the wettest locations, while most locations didn't even manage a quarter of an inch. A few locations picked up no rainfall at all, or only trace amounts. Rainfall totals for January were less than 5 percent of normal at most climate stations.

January Regional Precipitation Summary

Location	January Rainfall	Normal Jan Rainfall	Percent of Normal
North Bay			
Angwin	0.15	7.76	2
Calistoga	0.20	8.16	2
Cloverdale	0.24	8.43	3
Kentfield	0.02	9.13	0
Muir Woods	0.38	6.97	5
Napa	0.11	5.13	2
Napa Airport	0.08	4.38	2
Occidental	0.38	11.11	3
Petaluma Airport	0.12	4.93	2
Saint Helena	0.04	6.94	1
San Rafael	0.00	6.95	0
Sonoma County Airport	0.10	7.05	1
Sonoma	0.07	6.02	1
San Francisco Peninsula			
Half Moon Bay	0.17	5.53	3
Redwood City	0.00	4.02	0
San Francisco Airport	0.01	4.19	0
San Francisco Downtown	0.06	4.50	1
Woodside	0.00	5.98	0
East Bay			
Antioch	0.24	2.66	9
Berkeley	0.10	4.98	2
Concord	0.11	3.54	3
Concord Airport	0.10	3.27	3
Fremont	0.02	3.07	1

Hayward Airport	0.00	3.30	0
Livermore	0.08	2.87	3
Livermore Airport	0.09	3.01	3
Martinez	0.08	4.01	2
Mount Diablo Junction	0.13	4.77	3
Newark	0.04	2.95	1
Oakland	0.04	4.71	1
Oakland Airport	0.04	3.99	1
Richmond	0.33	4.83	7
South Bay and Santa Cruz County			
Ben Lomond	0.02	10.06	0
Gilroy	0.06	4.38	1
Los Gatos	0.11	4.94	2
Moffett Federal Airfield	0.08	2.75	3
Mount Hamilton	0.35	4.68	7
San Jose	0.12	3.07	4
Santa Cruz	0.05	6.28	1
Watsonville	0.05	4.46	1
Watsonville Airport	0.05	3.81	1
Monterey and San Benito Counties			
Carmel Valley	0.19	3.82	5
Hollister	0.22	2.93	8
King City	0.11	2.32	5
Monterey	0.04	4.40	1
Monterey Airport	0.07	3.17	2
Pinnacles National Park	0.10	3.48	3
Salinas	0.12	3.09	4
Salinas Airport	0.12	2.60	5

January 2014 was the driest January on record for the vast majority of climate stations – some of which have climate records that span over a century. The table below lists all climate stations which experienced their driest January on record:

Location	Normal January precip (inches)	January 2014 precip (inches)	Previous Driest January and Amount		Length of Climate Record (years)
San Francisco Bay Area:					
Angwin	7.76	0.15	2007	0.48	70
Berkeley	4.98	0.10	1984	0.22	114
Calistoga	8.16	0.20	2007	0.35	82
Cloverdale	8.43	0.24	2009	0.48	58
Gilroy	4.38	0.06	1976	0.21	67
Half Moon Bay	5.53	0.17	1984	0.26	72
Kentfield	9.13	0.02	1976	0.33	112
Livermore	2.87	0.08	1948	0.20	111
Los Gatos	4.94	0.11	1948	0.22	121
Martinez	4.01	0.08	1984	0.33	86
Mount Diablo Junction	4.77	0.13	1984	0.31	61
Muir Woods	6.97	0.38	1984	0.53	73
Napa	5.13	0.11	1976	0.34	116
Newark	2.95	0.04	1984	0.14	71
Oakland Museum	4.71	0.04	1976	0.31	42
Oakland Airport	3.99	0.04	1984	0.26	50
Occidental	11.11	0.38	1976	0.57	69
Petaluma Airport	4.93	0.12	1920	0.24	99
Redwood City	4.02	0.00	2002	0.24	85
Saint Helena	6.94	0.04	2007	0.43	101
San Francisco Airport	4.19	0.01	2013	0.20	68
San Francisco Downtown	4.50	0.06	1920	0.26	165
San Rafael	6.95	0.00	2007	0.31	59
Sonoma	6.02	0.07	1976	0.36	74
Monterey Bay Area:					
Ben Lomond	10.06	0.02	1976	0.31	78
Monterey	4.40	0.04	1984	0.11	72
Santa Cruz	6.28	0.05	1976	0.32	121
Watsonville	4.46	0.05	1984	0.23	101

San Jose's 0.12 inch rain total in January was its second lowest January rain total on record. The driest January in San Jose was in 1920 with a total of 0.10. San Jose rainfall records date back to 1893. Salinas also had its second driest January with only 0.12 inches (the driest January in Salinas occurred in 1971 when there was no measurable rainfall).

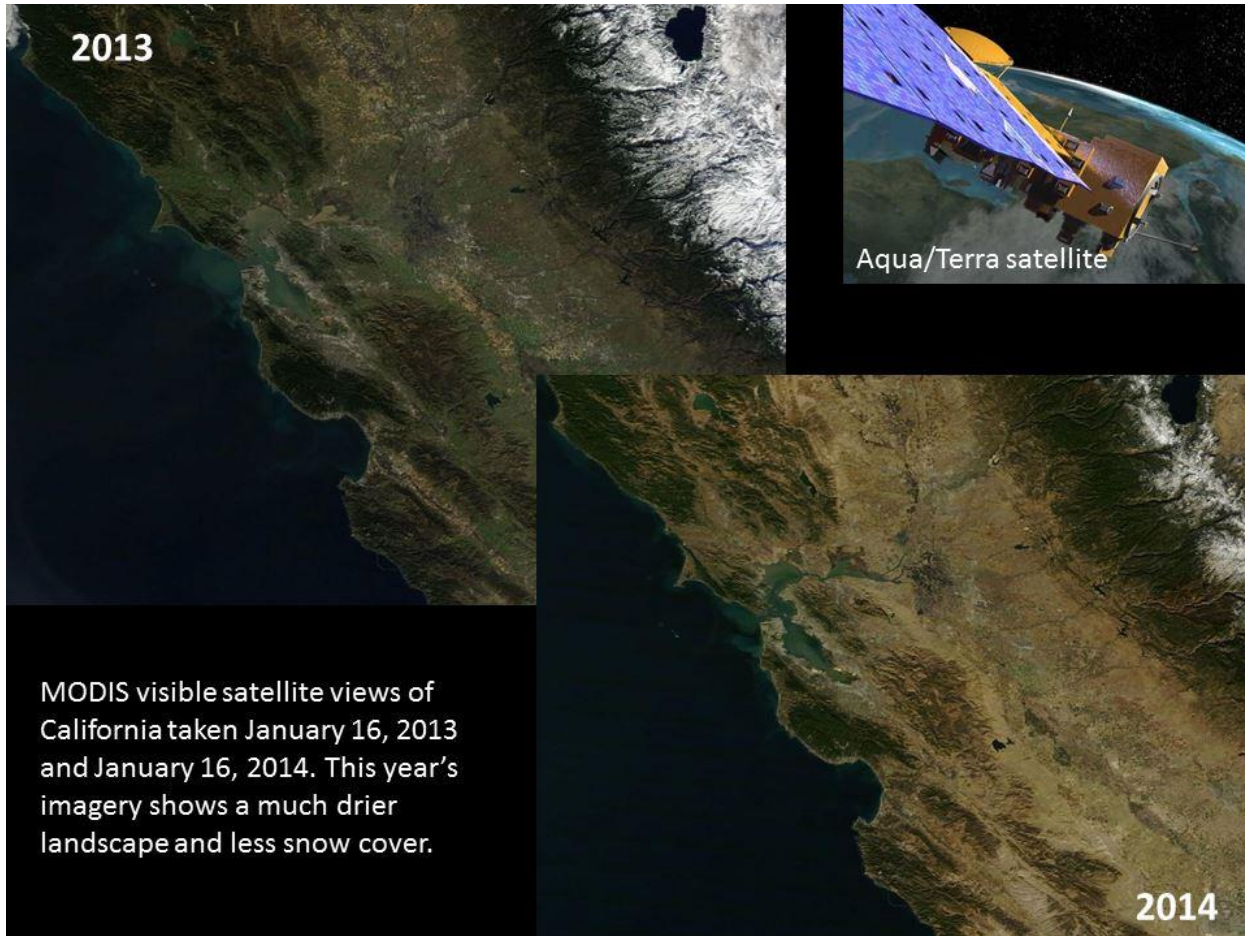
In addition, Richmond, the Salinas Airport, and Pinnacles National Park all had their 3rd driest January on record.

Finally, climate stations in King City and Antioch and on Mount Hamilton all experienced their 4th driest January.

The 2013-2014 rain year began on July 1, 2013. As of January 31, seven months into the rain year, the year-to-date rainfall totals across the region were only 10 to 20 percent of normal. Some locations in the East Bay, including Concord, Livermore and Mount Diablo Junction were faring a little better with year-to-date totals between 25 and 30 percent of normal. As of January 31, Downtown San Francisco's year-to-date total was

2.14 inches and only 16 percent of normal. 2.14 inches is also a record low rainfall amount for first seven months of the rainy season in San Francisco. The previous record was 2.36 inches (July 1, 1917-January 31, 1918).

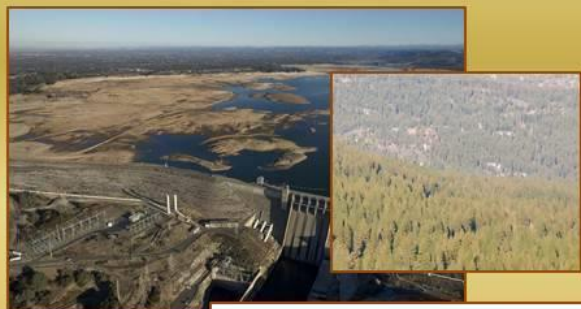
Well below normal precipitation across California this rainy season has resulted in much below normal snowpack in the Sierra Nevada and stressed vegetation across much of the state. These conditions are clearly evident in the comparison satellite images shown below:



Record dry conditions from January 2013 through January 2014 worsened drought conditions in California. On Friday, January 17, Governor Jerry Brown officially declared a drought emergency in California, asking all citizens of the state to cut back on their water use by 20%.

Gov. Jerry Brown Declares Drought Emergency

Drought Emergency declared for the state of CA, in the wake of a dry winter and bleak forecast for the upcoming weeks



What does this mean for California?

- Voluntary cutbacks of 20%
- Allows water to be diverted away from fisheries and sent to farmland
- Mandates state buildings to implement water conservation measures
- US Dept of Agriculture also declared natural disaster for many CA counties



Visit our web site:

www.cnrfc.noaa.gov

Like us on Facebook:

[Facebook.com/CNRFCC](https://www.facebook.com/CNRFCC)

Follow us on Twitter:

[Twitter.com/NWSCNRFCC](https://twitter.com/NWSCNRFCC)

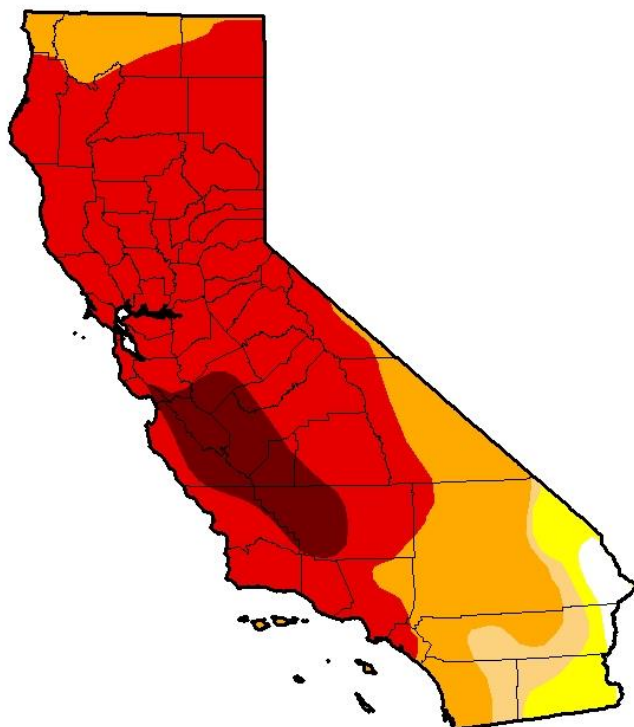
Issued Friday January 17th, 2014 10 AM PST

California Nevada River Forecast Center



By late January, the [US Drought Monitor](#) began to depict portions of Central California as being in “**exceptional**” (D4) drought”, including portions of Monterey, Santa Cruz and Santa Clara counties and all of San Benito county. This is the worst drought category on the Drought Monitor. The degradation was made due to historically low rainfall amounts so far this winter, long-term precipitation deficits stretching several years, and a growing number of increasingly significant drought impacts. This is the first time the D4 category has existed in California since the inception of the Drought Monitor in 2000. In addition, 67% of California was now covered by D3/4 conditions, also the highest since the Drought Monitor began.

U.S. Drought Monitor California



January 28, 2014
(Released Thursday, Jan. 30, 2014)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	1.43	98.57	94.18	89.91	67.13	8.77
Last Week 1/21/2014	1.43	98.57	94.18	89.91	62.71	0.00
3 Months Ago 10/29/2013	2.66	97.34	95.98	84.12	11.36	0.00
Start of Calendar Year 12/31/2013	2.61	97.39	94.25	87.53	27.59	0.00
Start of Water Year 10/1/2013	2.63	97.37	95.95	84.12	11.36	0.00
One Year Ago 1/29/2013	34.20	65.80	47.18	21.57	0.00	0.00

Intensity:

D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought
D2 Severe Drought	

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Anthony Artusa
NOAA/NWS/NCEP/CPC



<http://droughtmonitor.unl.edu/>

The next day, on January 29, climate.gov released a story highlighting the “[Worst Drought on Record](#)” in California.

Miscellaneous January Climate Information:

Daily High Temperature Records for January 2014			
Date	Location	Record Max Temp	Previous Record and Year
1/03	Oakland Museum	69	67 in 2001
1/03	Moffett Federal Airfield	66	66 in 1999
1/04	San Rafael	67	61 in 2003
1/04	San Francisco Airport	66	62 in 2006
1/04	Richmond	69	68 in 1996
1/04	Moffett Federal Airfield	67	66 in 1986
1/04	Gilroy	72	70 in 1996
1/05	San Rafael	66	64 in 2000
1/05	San Francisco Airport	66	65 in 1986
1/05	Oakland Museum	72	67 in 2012
1/05	Oakland Airport	68	64 in 1986
1/05	Salinas	76	75 in 2001
1/05	Salinas Airport	74	73 in 2001
1/13	Oakland Airport	70	69 in 2009
1/14	San Francisco Airport	72	67 in 1948
1/14	Oakland Museum	73	70 in 2009
1/14	Oakland Airport	74	65 in 2009
1/14	Moffett Federal Airfield	74	73 in 2009
1/14	San Jose	76	73 in 2009
1/14	Salinas	80	80 in 2009
1/15	Kentfield	68	67 in 1945
1/15	Napa	72	70 in 1966
1/15	San Francisco Airport	73*	69 in 1974
1/15	Oakland Museum	76	75 in 2009
1/15	Oakland Airport	77	74 in 2009
1/15	Moffett Federal Airfield	72	72 in 2009
1/15	Gilroy	75	72 in 2012
1/15	Monterey	82	76 in 2009
1/15	Santa Cruz	82	75 in 2009
1/15	Salinas	85	79 in 2009
1/15	Salinas Airport	83*	78 in 2009
1/16	San Francisco	72	71 in 1991
1/16	San Francisco Airport	73*	69 in 1991
1/16	Oakland Museum	78*	72 in 2009
1/16	Oakland Airport	69	67 in 2009
1/16	Richmond	74	72 in 2009
1/16	Moffett Federal Airfield	73	71 in 2009
1/16	San Jose	73	73 in 2009
1/16	Gilroy	77	72 in 1974
1/16	Monterey	78	78 in 2009
1/16	Salinas Airport	84*	80 in 2009
1/17	Oakland Museum	74	71 in 1991
1/17	Gilroy	80*	74 in 2009
1/17	Monterey	84	80 in 2009
1/17	Salinas Airport	86*	80 in 2009
1/17	Salinas	87	83 in 2009
1/18	Kentfield	70	68 in 1998
1/18	Richmond	71	70 in 1995

1/18	Oakland Museum	73	71 in 1971
1/18	Oakland Airport	67	66 in 1958
1/18	Moffett Federal Airfield	71	71 in 1981
1/19	Gilroy	79	77 in 1994
1/19	Salinas Airport	79	79 in 2009
1/20	Kentfield	68	67 in 1945
1/20	San Francisco	69	69 in 2009
1/20	Oakland Museum	72	71 in 1976
1/20	Moffett Federal Airfield	71	70 in 2009
1/21	San Francisco Airport	68	67 in 1976
1/21	Oakland Museum	71	67 in 2007
1/21	Salinas Airport	76	75 in 1975
1/22	Oakland Museum	75	67 in 2013
1/22	Moffett Federal Airfield	74	72 in 1968
1/22	San Jose	72	72 in 2011
1/22	Gilroy	74	72 in 1989
1/23	Oakland Museum	72	72 in 2011
1/24	Oakland Museum	71	70 in 1988
1/25	Oakland Museum	73	72 in 2011
1/25	Moffett Federal Airfield	72	70 in 2011
1/25	Gilroy	77	71 in 2007
1/25	Salinas	78	77 in 2011
1/25	Salinas Airport	78	76 in 2011
1/25	San Rafael	70	70 in 1948
1/25	Oakland Airport	70	70 in 2011
1/25	San Jose	71	71 in 1948
1/26	Oakland Museum	73	72 in 1984
1/26	Moffett Federal Airfield	70	69 in 2011
1/26	San Rafael	68	66 in 1976
1/26	San Jose	71	70 in 2011
1/26	San Francisco Airport	66	66 in 1984
1/26	Livermore	72	72 in 1918
1/29	Moffett Federal Airfield	68	68 in 1989

* New high temperature records for the entire month of January.

Monthly Ranks for Downtown San Francisco		
Average High Temperature	64.0 deg	Warmest January out of 140 years (previous record: 62.6 in 2003)
Average Low Temperature	48.9 deg	11 th warmest January out of 140 years
Average Mean Temperature	56.5 deg	2nd warmest January out of 140 years (record warmest is 56.6 in 1986)
Precipitation	0.06 in	driest January out of 165 years (previous record 0.26 inches in 1920)

Monthly Extremes for Select Locations			
Location	Max Temp: Warmest Day(s)	Min Temp: Coolest Day(s)	Precipitation: Wettest Day(s)
Sonoma County Airport	1/25	1/05	1/11
	76 degrees	23 degrees	0.08 inches
San Francisco	1/16	1/01	1/30
	72 degrees	44 degrees	0.03 inches
Livermore Airport	1/22	1/01	1/30
	75 degrees	31 degrees	0.09 inches
San Jose	1/14	1/01 1/05	1/30
	76 degrees	35 degrees	0.10 inches
Salinas Airport	1/17	1/13	1/30
	86 degrees	37 degrees	0.10 inches

Other January 2014 items:

The exceptionally dry weather during January meant a continuation of unusually high wildfire danger across California. The dry conditions, coupled with a few offshore wind events in the hills, resulted in the first ever **Red Flag Warning** issuances by the San Francisco Bay Area NWS office during the month of January. Three Red Flag events occurred over seven days in January, covering January 13-16 and January 22-24.

A large long period ocean swell began to move into the northern and central California coastal waters on Thursday January 23. High surf advisories had been issued for the entire coastline well in advance of this event. The swell peaked on the morning of Friday January 24 when the “Mavericks Invitational Big Surf Competition” took place near Half Moon Bay.



A surfer competes in the Mavericks Invitational Big Surf Competition near Half Moon Bay on January 24, 2014. Photo credit: Eric Risberg/AP